

Australian Melolonthinae (Coleoptera: Scarabaeidae) in the Frey Museum

by E. B. Britton

By the courtesy of Dr. G. Frey I have recently received for study a collection of 1,686 specimens of Melolonthinae from Australia. The collection includes specimens of 15 hitherto undescribed species, some of which were quite new to me, while others had already been received in other collections. The new species are described below. All belong to genera that I am revising or have already revised.*

I have taken the opportunity of describing material from the collections of Mr. F. E. Wilson of Melbourne, the South Australian Museum, The Western Australian Museum, the Division of Entomology, C.S.I.R.O., Canberra, and the Department of Agriculture, Western Australia. I wish to record my thanks to Herr G. Frey, Mr. Wilson, and to the officers in charge of the official collections for the loan of material, and to Monsieur A. Villiers of the Paris Museum for information on the type of *Colymbomorpha lineata* Blanchard.

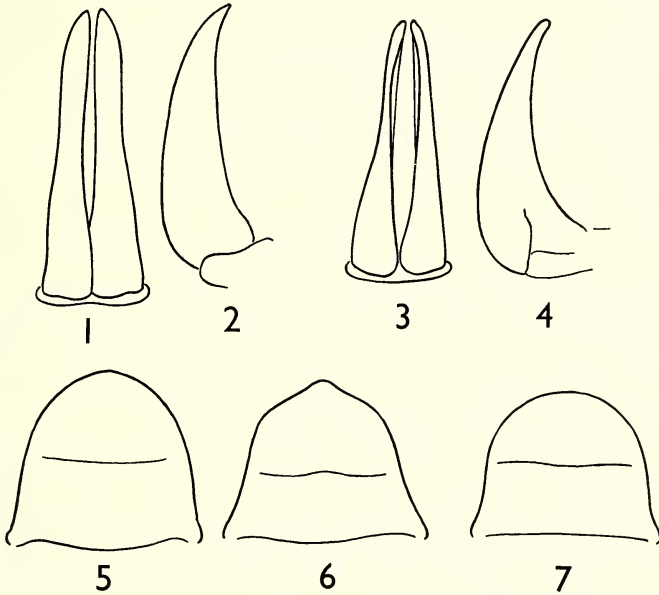
SERICINI

Neophyllotocus cuspis sp. nov.

L e n g t h : 4.5–6.0 mm. C o l o u r : head, pronotum, scutellum, abdomen and ventral surface black; legs mainly black, the anterior tarsi and the apices of the teeth of the anterior tibiae reddish-brown; spines on the middle and posterior tibiae pale reddish-yellow; elytra pale yellowish-brown with the sutural and lateral margins dark brown or black; setae on the head and pronotum mixed black and pale yellow; setae on the elytra black except for a few yellow setae on the sutural interval; setae on the ventrites pale yellow; setae on the pygidium black, antennae dark brown, club black; palpi dark brown. Labrum (figs. 5, 6) more elongate than in

* Britton, E. B., 1957, A Revision of the Australian Chafers, 1 [British Museum (Natural History)].

N. legnotus Britton (fig. 7), ratio of greatest width/length c. 1.85, labrum slightly arched as in *N. legnotus*, the anterior edge with a distinct obtuse median angle which is more obvious in the female (fig. 6) than in the male (fig. 5); surface of the labrum finely punctured. Clypeus convex in the middle with lateral margins concave and reflexed at the edges. Clypeus and frons clothed with long, stout, erect setae. Pronotum surface with setiferous punctures which are separated by several diameters and are very sparse or absent in the median longitudinal line; the punctures bear long,



- 1 *Neophyllotocus legnotus* Britton, parameres.
- 2 *Neophyllotocus legnotus* Britton, parameres, lateral.
- 3 *Neophyllotocus cuspis* sp. nov., parameres.
- 4 *Neophyllotocus cuspis* sp. nov., parameres, lateral.
- 5 *Neophyllotocus cuspis* sp. nov., labrum and clypeus ♂.
- 6 *Neophyllotocus cuspis* sp. nov., labrum and clypeus ♀.
- 7 *Neophyllotocus legnotus* Britton, labrum and clypeus ♂.

stout, black setae, or shorter, finer, pale yellowish setae, the latter being more abundant towards the sides of the pronotum. Elytra with only the first stria impressed so that only the sutural interval is obvious; elytra punctured like the pronotum, the punctures bearing long, stout, erect setae which are black on and around the scutellum; apices of the elytra broadly rounded, with a few very stout, long, pointed spines. Anterior tibia with two acute angled teeth on the outer edge in addition to the apical process. Males are

recognisable by the enlarged, bifid inner claw of the anterior tarsus. Aedeagus (figs. 3, 4) the parameres more slender than in *N. legnotus* (figs. 1, 2).

Locality: Western Australia: Perth, IX. 1953, (H. Demarz), Holotype ♂, 23 ♂ paratypes, 15 ♀ paratypes.

Location of Types: holotype and paratypes in the Frey Museum; paratypes in the British Museum.

The genus *Neophyllotocus* includes five previously described species (Britton, 1957).

Neophyllotocus cuspis is most closely related to *N. legnotus* and is distinguishable from that species by the darker brown colour of the basal segments of the palpi, by the shape of the labrum (figs. 3, 4) (ratio of greatest width/middle length 1.85 compared with 2.3 in *N. legnotus*) and by the more slender parameres of the aedeagus.

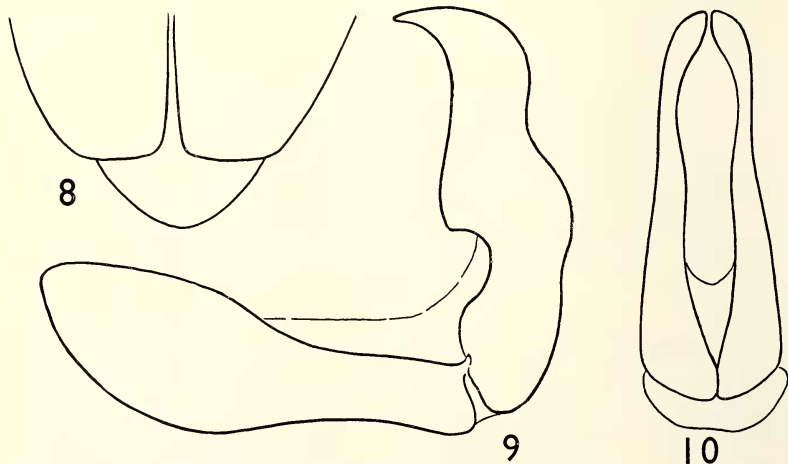
XYLONYCHINI

The collection includes two new species of *Colymbomorpha* Blanchard, a genus which hitherto has contained a single species. The genus is defined as follows: —

Colymbomorpha

Colymbomorpha Blanchard 1850 (1851), Cat. Coll. ent. Mus. Paris, 1: 98.

Xylonychini in which the terminal segments of the tarsi have no spines



- 8 *Colymbomorpha lineata* Blanchard, apices of elytra.
 9 *Colymbomorpha lineata* Blanchard, parameres, lateral.
 10 *Colymbomorpha lineata* Blanchard, parameres.

beneath; mesosternal projection in the form of a thin vertical lamina which extends forwards between the anterior coxae; dorsal and ventral surfaces of the body clothed with recumbent or adpressed, pointed setae; anterior face of the clypeus forming a distinct step down to the plane of the labrum which projects in front; anterior edge of the labrum emarginate; abdomen with a well-developed longitudinal ridge on each side of all segments; pronotum with very narrow reflexed lateral margins and a narrow anterior margin defined by a very fine groove. The genus is limited to Western Australia.

Key to the Species of *Colymbomorpha*

- 1 Elytra uniform in colour, brown (♀) or black (♂); apices of the elytra uniformly rounded (fig. 14); aedeagus with parameres straight and blunt-ended (fig. 15); length 5-7 mm.

uniformis sp. nov.

Elytra reddish-brown to dark metallic green or cupreous, each with a broad, longitudinal, yellow stripe occupying intervals 5 and 6; apices of the elytra not uniformly rounded (figs. 8, 11), parameres pointed and hooked at their apices (figs. 9, 12). 2

- 2 Elytra truncate at their apices (fig. 8); elytra with yellowish stripe extending about one half of the length of the elytra from the base; aedeagus (figs. 9, 10), length 5-9 mm.

lineata Blanchard

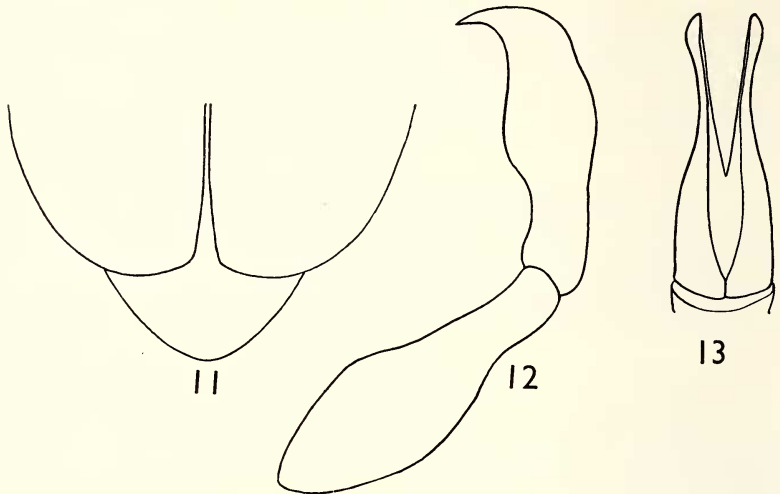
Elytra more rounded at their apices (fig. 11); elytra with longitudinal yellowish stripe usually visible to the apex; aedeagus (figs. 12, 13) length 7-9 mm.

vittata sp. nov.

***Colymbomorpha vittata* sp. nov.**

Head reddish-brown with metallic green or cupreous reflections, the frons sometimes darker. Pronotum with disc dark metallic green or cupreous, lateral and sometimes the anterior and posterior margins reddish-brown. Elytra with the sutural intervals and sometimes the second intervals reddish-brown, sometimes cupreous; intervals 3 and 4 or 2, 3 and 4 dark metallic green; intervals 5 and 6 yellowish, connecting with a yellowish patch covering the apex of the elytron; this longitudinal yellow stripe is delimited on the outer side by dark metallic green which may extend to the edge of the elytra. Scutellum dark metallic green or cupreous. Pygidium yellowish brown. Ventrites yellowish or reddish in the middle, usually darker towards the sides; remainder of the ventral surface yellowish brown

with greenish reflections. Palpi dark brown. Antennae reddish-brown with lamellae black. Body clothed with adpressed whitish setae which are easily removed by abrasion. Aedeagus as figs. 12, 13. Outline of the clypeus not uniformly rounded, slightly flattened in the middle of the anterior edge.



- 11 *Colymbomorpha vittata* sp. nov., apices of elytra.
 12 *Colymbomorpha vittata* sp. nov., aedeagus lateral.
 13 *Colymbomorpha vittata* sp. nov., parameres.

The species is very closely related to *C. lineata* Blanchard; my earlier description of *C. lineata* (1957) in fact covers both species. *C. vittata* is distinguishable by its colour pattern, by the rounded apices of the elytra (fig. 11) and by the male genitalia.

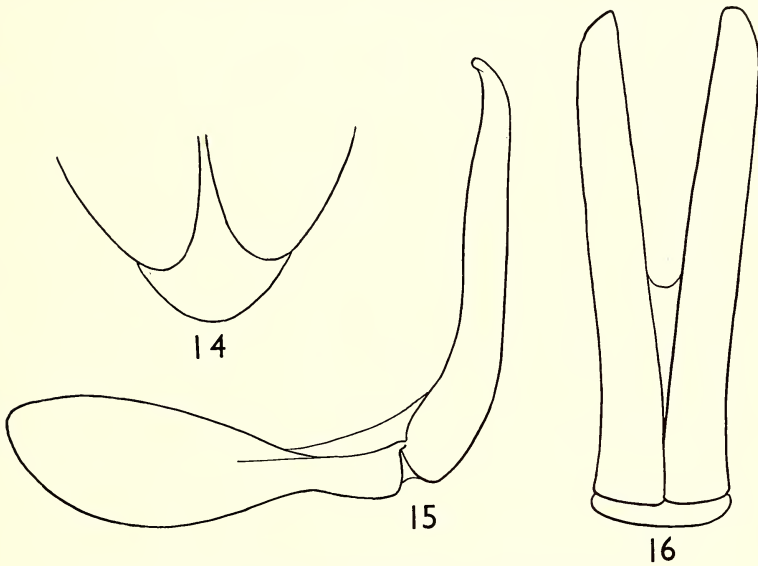
Localities: Western Australia: Kelmscott, 12. XI. 1903, (H. M. Giles), holotype ♂; Serpentine, 4. XII. 1902, (H. M. Giles), 2 paratypes ♀; Yanchep, 24. XI. – 2. XII. 1935, (R. E. Turner), 1 paratype ♂; South Perth, 30. XI. 1903, (H. M. Giles), 2 paratypes ♀; without detailed locality, 5 paratypes ♂; Calgardup, 4 paratypes ♂, 1 ♀; Midland, 1 paratype ♂; Dunsborough, 1 paratype ♀; Kalamunda, 1 paratype ♂; Waroona, 10. XI. 1948, (F. E. Wilson), 2 paratypes ♂.

Location of Types: holotype in the British Museum; paratypes in the British Museum, Frey Museum, Western Australian Museum and the collection of Mr. F. E. Wilson.

***Colymbomorpha uniformis* sp. nov.**

Length: 5–7 mm. Labrum yellowish-brown, clypeus and frons yellowish-brown with greenish metallic or dark cupreous reflections. Disc of

pronotum dark brown with cupreous reflections, the lateral margins yellowish with slight greenish reflection. Scutellum and elytra black (♂) or reddish-brown to dark brown (♀). Ventral surface mainly black or dark brown (♂), reddish or yellowish-brown, legs and the mesosternal lamina yellowish or reddish-brown. Palpi and the shaft of the antenna dark brown, laminae of the antennal club black. Body clothed with short, pointed, backwardly inclined setae. The setae on the dorsal surface are white (♂) or yellowish (♀). The general form closely resembles that of the other two



14 *Colymbomorpha uniformis* sp. nov., apices of elytra.

15 *Colymbomorpha uniformis* sp. nov., aedeagus lateral.

16 *Colymbomorpha uniformis* sp. nov., parameres.

species. *C. uniformis* is distinguishable by its small size, the absence of a yellow stripe on the elytra, the uniformly rounded apices of the elytra, the uniformly rounded anterior edge of the clypeus and by the aedeagus.

Localities: Western Australia: near Perth, X. 1952 (H. Demarz); holotype ♂ and 8 paratypes, 23 paratypes ♀.

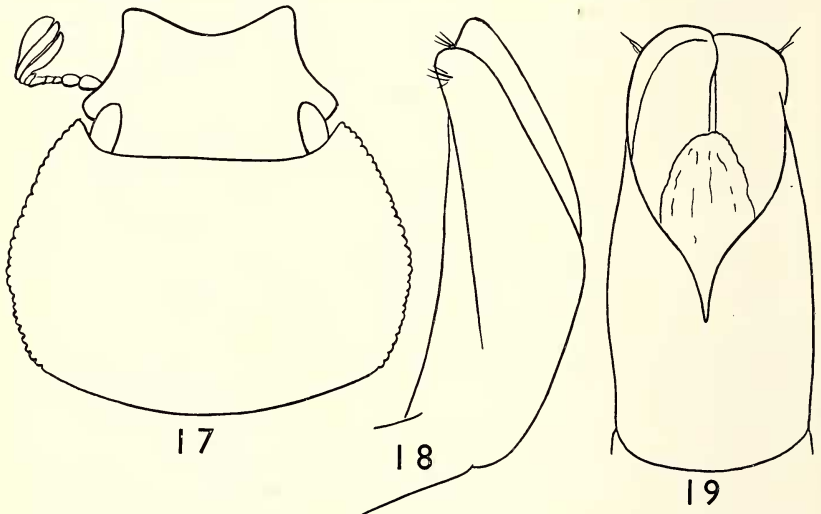
Location of Types: holotype and paratypes in the Frey Museum; paratypes in the British Museum.

MAECHIDIINI

Epholcis uniformis Britton

Epholcis uniformis Britton, 1957, Revision of the Australian Chafers, 1: 175, 177, fig. 518.

This species was described on two female specimens. A series in the Frey Museum collection includes both females and males, so that it is now possible to describe the male. The male resembles the female except that the terminal segment of the maxillary palpi and the lamellae of the antennae are slightly longer and the lamellae of the antennae are slightly longer and the anterior angles of the clypeus are acute, produced anteriorly and strongly reflexed (fig. 17). The anterior and lateral margins of the clypeus are concave (fig. 17). Aedeagus as figs. 18, 19.



17 *Epholcis uniformis* Britton, ♂, head and pronotum.

18 *Epholcis uniformis* Britton, parameres, lateral.

19 *Epholcis uniformis* Britton, parameres.

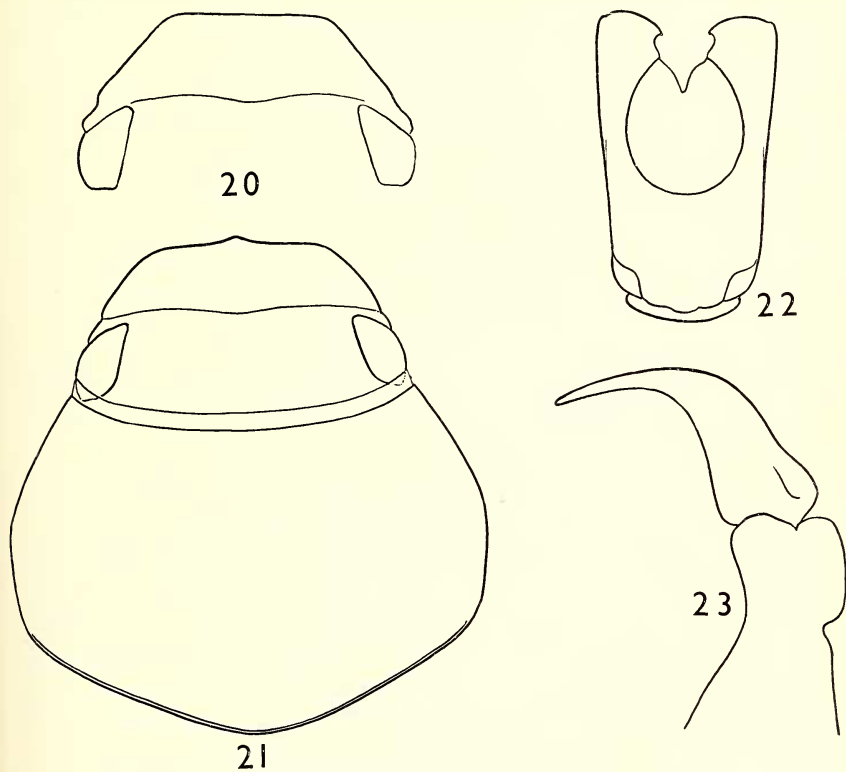
Locality: Northern Territory: Beswick (c. 14° S., 133° E.), I. 1958 (H. Demarz), 18 ♂, 18 ♀.

COLPOCHILINI

Liparetrus melallus sp. nov.

Length: 6–9 mm. Colour: body fairly uniform reddish or yellowish-brown, the frons in the ♂ darker than the remainder of the body. Antennae pale yellowish-brown, 8-segmented. Anterior edge of the clypeus in ♀ with

a slight, very obtuse median point (fig. 21); margins of the clypeus reflexed; antero-lateral angles broadly rounded. Anterior face of clypeus as deep as the labrum in the middle; antero-ventral face of the labrum slightly concave with a row of about six setae. Upper surface of the clypeus and frons very densely and finely punctured, without ridges, tubercles or setae. Outline of head and pronotum as figs. 20 and 21, the posterior edge of the pronotum with an obvious but rounded angle in the middle. Middle length of the membranous anterior margin equal to about $1/20^{\text{th}}$ of the middle length of the pronotum. Anterior margin of the pronotum defined by a fine groove, and without setae; posterior margin fine, raised and defined by a



20 *Liparetrus melallus* sp. nov., ♂, outline of head.

21 *Liparetrus melallus* sp. nov., ♀, outline of head and pronotum.

22 *Liparetrus melallus* sp. nov., parameres.

23 *Liparetrus melallus* sp. nov., aedeagus, lateral.

groove. Surface of the pronotum finely and uniformly punctured, without setae. Density of punctures on the pronotum c. 200/sq. mm. Elytra with striae 2 and 3, 4 and 5, 6 and 7 paired, the sutural, 3rd, 5th and 7th intervals being about $1/4$ or $1/3$ of the width of adjacent intervals; the wider intervals

fairly uniformly punctured, density c. 100/sq. mm. Elytra without membranous apical margins and without a fringe of setae. Propygidium and pygidium finely, and fairly densely and uniformly punctured, except at the apex of the pygidium; without setae, the surface dull, with obvious isodiametric microsculpture. Posterior coxae with broad, continuous, membranous, posterior and lateral margins. Anterior tibiae each with two stout teeth on the outer edge in addition to the apical point. Aedeagus as figs. 22, 23.

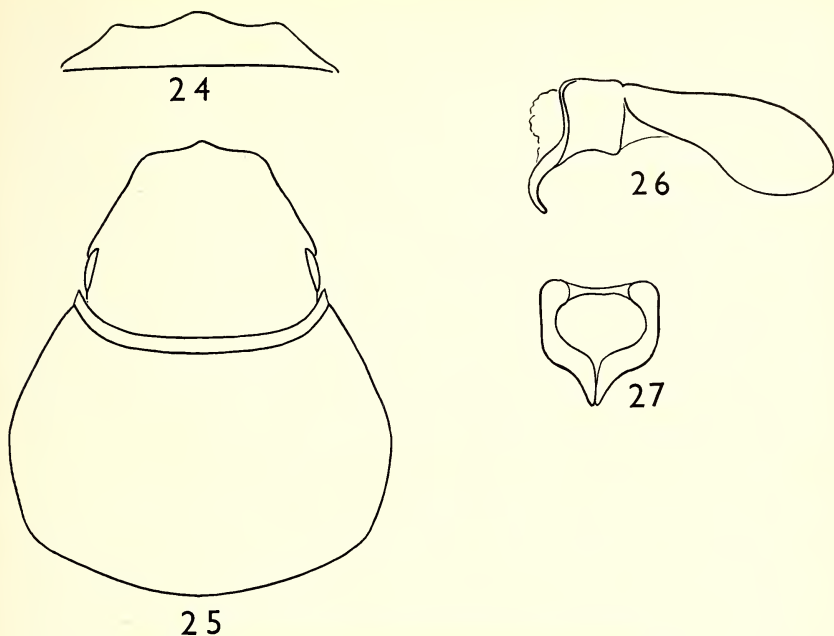
Liparetrus melallus is closely related to *L. semiatriceps* Lea, being distinguished from that species only by the absence of setae on the propygidium and pygidium towards the sides, by the absence of a fringe of long yellow setae on the upper side of the reflexed anterior margin of the clypeus, by the absence of a few long setae on the anterior margin of the pronotum near the lateral angles, and by the more prominent median angle of the posterior edge of the pronotum.

Localities: Northern Territory: Roper-River, IX.-XII. 1910, (E. D. Frizelle), holotype ♂ and 3 paratypes (2 ♂, 1 ♀). Queensland: Cloncurry (R. de Rossignol), 1 paratype ♀. Western Australia: Liveringa (H. Demarz), 8 paratypes (3 ♂, 5 ♀). "New Holland, N. W. Coast." (J. Bynoe) c. 1844, 1 paratype ♀.

Location of Types: holotype in the collection of Mr. F. E. Wilson, Melbourne; paratypes in Mr. Wilson's collection, in the Frey Museum and in the British Museum.

***Liparetrus triangulatus* sp. nov.**

Length: 4.5-6.0 mm. **Colour:** head black; palpi pale reddish-brown; antennae pale reddish-brown except the club which is black; pronotum black or dark brown with a pale yellowish transparent anterior margin; scutellum dark brown or black; elytra pale yellowish-brown with sutural interval and the extreme base darkened; ventral surface of thorax and coxae black; abdomen black (♂) or pale yellowish-brown (♀); legs pale reddish-brown; ocular canthi and the lateral margins of the pronotum bearing pale yellowish setae; ventral surface of the thorax and coxae with white recumbent setae and sparse, erect, pale yellowish setae. Labrum about as deep as the anterior face of the clypeus which lies above it; the concave antero-ventral face of the labrum bearing a number of very short, stout, yellow setae and four longer setae which project near the upper edge. Clypeus with anterior face vertical and almost plane, the upper edge raised in the middle and at each side to form distinct obtuse angles (figs. 24, 25); the anterior face with six setiferous punctures in a transverse row,



- 24 *Liparetrus triangulatus* sp. nov., anterior edge of clypeus viewed obliquely from behind.
 25 *Liparetrus triangulatus* sp. nov., head and pronotum.
 26 *Liparetrus triangulatus* sp. nov., aedeagus, lateral.
 27 *Liparetrus triangulatus* sp. nov., parameres.

the setae short, pale, directed upwards; anterior margin of the clypeus strongly reflexed. Viewed from above the clypeus is trapezoidal in shape, with anterior angles distinct but rounded. Upper surface of the clypeus punctured, the punctures usually separated by about their own width; clypeus with a transverse row of short erect setae just behind the reflexed anterior edge; frons with transversely oval punctures, fairly uniformly but more closely spaced than on the clypeus; eyes only slightly convex, not projecting. Antennae 9-segmented. Pronotum with anterior angles acute, posterior angles very obtuse and rounded, ratio of greatest width/middle length c. 1.60 (fig. 25); anterior margin pale yellow, mebranous, delimited by a fine, continuous ridge; posterior margin raised in the middle, depressed and not distinctly limited elsewhere; disc with a broad, shallow, median longitudinal depression extending from near the apex to near the base; puncturation of the middle of the disc of the pronotum like that on the clypeus, becoming denser towards the sides; each lateral edge of the pronotum with a sparse fringe of long, stout setae; the fringe not extending to the posterior angles. Disc of the pronotum without setae. Elytra with

nine longitudinal striae marked by punctures, the intervals 1, 3, 5, 7 and 9 unpunctured and less than half as wide as the adjacent intervals which are fairly uniformly punctured; intervals, 1, 3 and 5 are moderately convex. Elytra without setae on the upper surface. Ratio of length/greatest width of one elytron 2.2 or less. Pygidium with a median longitudinal unpunctured ridge which is continued on the apical part of the penultimate tergite. Pygidium and penultimate tergite punctured, the punctures bearing minute recumbent setae which are visible with difficulty. Anterior leg with tarsus twice as long as the tibia, the tibia with only one very slender tooth on the outer side, in addition to the apical process. Posterior coxae with posterior margins transparent, membranous, and lateral margins chitinous and black. The tergite and ventrite of the penultimate abdominal segment are separated by a suture on each side. Aedeagus as figs. 26, 27.

Liparetrus triangulatus is fairly closely related to *L. striatus* Blanchard. The elytra of the latter differ only in having the margins darkened. *L. triangulatus* also differs from *L. striatus* by having no obvious, flattened adpressed setae on the propygidium, by the presence of a median longitudinal ridge on the pygidium extending to the upper edge, by the median and lateral angles of the reflexed anterior edge of the clypeus and by the presence of only one tooth on the outer edge of the anterior tibia.

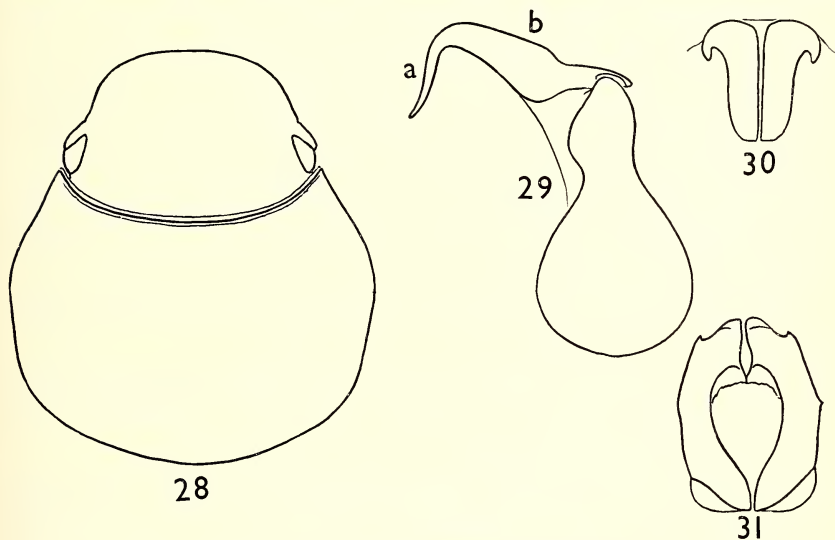
Locality: Western Australia: near Perth, X. 1954 (H. Demarz). Holotype ♂, 11 paratypes ♂, 3 paratypes ♀.

Location of Types: holotype and paratypes in the Frey Museum; paratypes in the British Museum.

***Liparetrus mulurus* sp. nov.**

Length: 5–6 mm. Colour: head, pronotum and ventral surface black; elytra and legs reddish-brown to black; antennae reddish-brown with club black, or all black; pronotum with anterior margin pale yellow, transparent; ocular canthi, and the lateral margins and ventral surface of the pronotum bearing pale yellowish-white setae; metasternum bearing very long, semi-erect white setae; posterior coxae bearing long, recumbent, feathery white setae; abdominal ventrites towards the sides clothed with short, recumbent, white, flattened hairs or scales. Labrum a little deeper than the anterior face of the clypeus above it; the deeply concave antero-ventral face of the labrum with a number of very short, stout, yellow setae and four longer setae which project near the upper edge. Clypeus with anterior edge slightly convex in outline (fig. 28), the lateral angles very broadly rounded; anterior face of the clypeus curved in the vertical plane and with a trans-

verse row of about 20 short, upcurved setae; anterior margin of the clypeus strongly reflexed, the upper surface coarsely and densely punctured; upper surface of the clypeus without setae and with a trace of a transverse ridge in the middle close to the fronto-clypeal suture. Frons more densely punctured than the clypeus, the punctures densely crowded, transverse-elliptical, the surface raised into a distinct ridge above the inner edge of each eye. Frons without setae except on the ocular canthi. Antennae 9-segmented, including a 3-segmented club. Lamellae of the club longer in ♂ than in ♀. Pronotum with surface densely punctured, the punctures transverse-elliptical in shape, separated longitudinally by about their own length; anterior margin defined by a groove continuous from side to side; anterior margin and surface of the pronotum without setae; anterior angles produced forwards, square; posterior angles obsolete, lateral edge continued into the



28 *Liparetrus mulurus* sp. nov., head and pronotum.

29 *Liparetrus mulurus* sp. nov., aedeagus, lateral.

30 *Liparetrus mulurus* sp. nov., view of parameres at a, fig. 29.

31 *Liparetrus mulurus* sp. nov., view of parameres at b, fig. 29.

basal edge in a smooth curve (fig. 28); base without a defined margin; each lateral edge with a sparse fringe of long setae. Surface of the pronotum with a very shallow median longitudinal depression near the base. Elytra densely punctured; sutural interval impressed and punctured; interval 2 about twice as wide as the sutural interval; interval 3 as wide as the sutural interval and slightly convex; elytra without setae on the surface; with a few very short stout setae on the margins and at the sutural angles; ratio

of maximum length/greatest width of one elytron 1.9. Pygidium densely and uniformly punctured except for a small, smooth, unpunctured, shining area at the apex; pygidium sparsely clothed with short, semierect, whitish setae; propygidium behind the posterior edges of the elytra clothed with white scales; in the ♂ the anterior half of each of the four basal ventrites with a transverse band of erect, soft, greyish-brown hairs occupying about the middle third of each ventrite; in the ♀ each ventrite has a single transverse row of semierect, backwardly curved setae. Anterior tibiae each with two teeth on the outer edge in addition to the apical point. Posterior coxae with posterior margins membranous and transparent, lateral edge chitinous, black; angle between lateral and posterior edges obvious. The tergite and ventrite of the penultimate abdominal segment are separated by a longitudinal suture on each side. Aedeagus figs. 29, 30, 31.

L. mulurus is related to *L. sylvicola* Fabricius by having the posterior margins of the posterior coxae transparent, the penultimate tergite and ventrite not fused, pronotum without setae on the disc., the propygidium clothed with broad, whitish scales; pygidium without a longitudinal ridge, surface of the frons and clypeus without setae, base of the pronotum not margined. *L. mulurus* differs from *L. sylvicola* by having the anterior margin of the pronotum defined by a fine groove and a median longitudinal depression on the pronotum.

The specific name is derived from "muluru" an aboriginal word meaning "small".

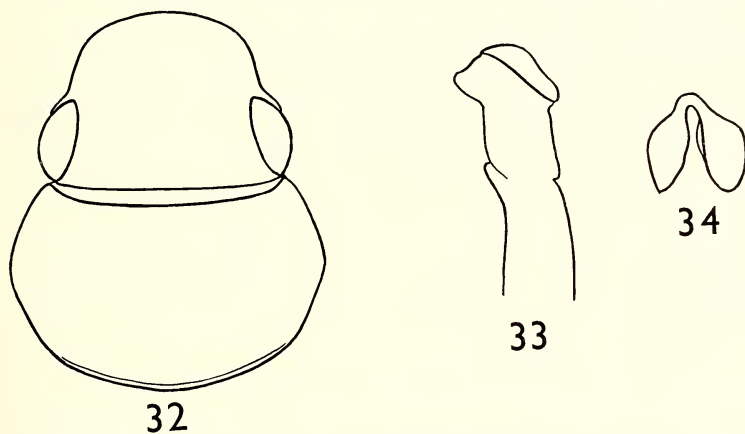
Localities: Western Australia: Swan River (holotype and paratypes), King George Sound; Connington, 27. IV. 1952, (A. Douglas); near Perth, XII. 1952 (H. Demarz).

Location of the Types: holotype and 13 paratypes in the British Museum, 3 paratypes in the South Australian Museum; 9 paratypes in the Frey Museum; 2 paratypes in the Division of Entomology, C. S. I. R. O., Canberra, 1 paratype in the West Australian Museum, 1 paratype in the Senckenberg Museum, Frankfurt-am-Main.

***Liparetrus atomus* sp. nov.**

Length: 3.7–4.2 mm. **Colour:** whole body including legs pale yellowish-brown. Labrum in the middle about twice as deep as the anterior face of the clypeus, the slightly concave antero-ventral face of the labrum with a few very short, erect setae. Outline of the clypeus as seen from above very slightly convex, the margins strongly reflexed; dorsal surface with a few very coarse punctures each of which bears a short, erect seta, and with

a pronounced ridge close to and parallel to the fronto-clypeal suture. Frons smoothly convex, with a shallow declivity above each eye, the surface strongly and uniformly punctured, without setae. Eyes unusually large and convex (fig. 32). Pronotum strongly transverse, ratio of greatest width/middle length (excluding anterior margin) c. 1.8, the membranous anterior margin unusually wide (0.12 of the length of the pronotum) and defined by a groove. Pronotum with a very fine raised posterior margin, defined by a groove. Outline of pronotum as fig. 32, the sides straight in front of the posterior angles which are very obtuse. Surface of the pronotum punctured like the frons and with a very shallow trace of a median longitudinal depression. Scutellum punctured in its apical half. Elytra with intervals 1, 3, 5, 7 each only half as wide as the adjacent intervals, slightly convex, and more sparsely punctured. Penultimate abdominal tergite faintly punctured,



- 32 *Liparetrus atomus* sp. nov., head and pronotum.
 33 *Liparetrus atomus* sp. nov., aedeagus, lateral.
 34 *Liparetrus atomus* sp. nov., parameres.

without setae. Pygidium strongly convex, depressed along the upper edge and with a trace of a median longitudinal ridge, surface faintly and rather sparsely punctured, each puncture bearing a short erect seta. Anterior tibia without a tooth on the outer edge. Posterior coxae with membranous posterior margin; lateral margins raised, not membranous, meeting the posterior margin in an angle. Tergite and ventrite of the penultimate abdominal segment fused, not separated at each side by a suture. Antennae 9-segmented. Aedeagus as figs. 33, 34.

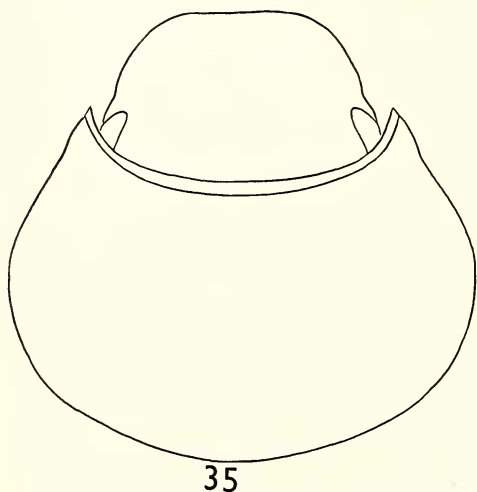
Liparetrus atomus appears to be most closely related to *L. monticola* Fabricius, from which it is, however, distinguished by its large eyes, fine posterior pronotal margin and by colour.

Localities: Northern Territory: Beswick (c. 14° S, 133° E.), I. 1958, (H. Demarz). Holotype and 3 paratypes.

Location of Types: holotype and paratypes in the Frey Museum, one paratype in the British Museum.

***Liparetrus jenkinsi* sp. nov.**

Length: 4.0–6.5 mm. Colour: head, pronotum, scutellum black; elytra yellowish-brown with base and sometimes other margins darkened, or black; abdomen black or, in some specimens with yellowish elytra, pygidium is yellowish-brown and remainder of the abdomen brown or black; ventral surface of thorax black, legs dark reddish-brown; shaft of antenna reddish-brown, club black; upper surface of head densely and uniformly punctured, without setae; setae on ocular canthi yellow; pronotum uniformly but less densely punctured, with setae only on the lateral edges; pronotum (fig. 35) with a slight median longitudinal depression; elytra with striae 2 to 9 grouped in pairs, the ratio of widths of intervals 2 and 3 c. 3 : 1; the broader intervals punctured like the pronotum; propygidium

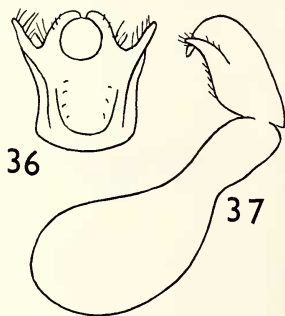


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35 *Liparetrus jenkinsi* sp. nov., head and pronotum.

36 *Liparetrus jenkinsi* sp. nov., parameres.

37 *Liparetrus jenkinsi* sp. nov., aedeagus, lateral.



36

37

and pygidium strongly punctured and bearing scattered broad, white scales; pygidium with an obvious median longitudinal ridge extending from the upper edge at least to the middle of the disc, and sometimes to the apex; the ridge continued more faintly on the propygidium; ventrites each with a transverse row of semierect yellow setae and a dense row of white

scales; antennae 9-segmented; anterior tibia with two teeth on the outer edge. Aedeagus as figs. 36, 37.

L. jenkinsi is closely related to *L. sylvicola* Fabricius and to *L. mulurus* sp. nov., possessing all those characters listed as common to those two species in the foregoing description of *L. mulurus*. It differs from both species by having an obvious median longitudinal ridge on the pygidium.

L o c a l i t i e s : Western Australia: Collie, (Mrs. H. M. Lindsay), holotype and 5 paratypes; Fremantle (J. J. Walker); Greenbushes, 24. IX. 1947, (C. F. Jenkins), "attacking eucalypts"; Bunbury, (L. J. Newman); Donnybrook, (Lea); Swan River, (J. Clark); Mt. Barker, (Helms); Mullewa, (Miss F. May); Chidlow, near Perth, 14. IX. 1923 (G. A. K. Marshall); Hovea, 29. IX. 1935 (K. R. Norris); Jarrahdale; West Midland; Midland; Cunderdin, IX.-X. 1913; Kuliba, 22. V. (H. Baker); Rottnest I., (L. Glauert); 1 mile N. E. of East Arthur, 27. IX. 1952 (Key and Wallace); 8 miles E. S. E. of Nyabing, 28. IX. 1952; Perth, IX. 1953 (H. Demarz); Toolibin, 18. X. 1958 (F. H. Uther Baker).

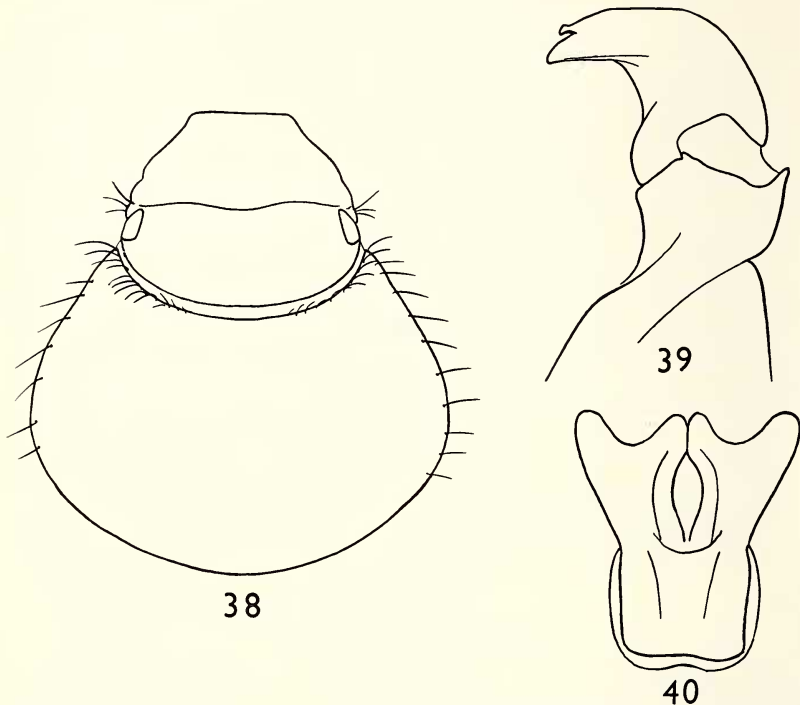
L o c a t i o n o f T y p e s : holotype and 8 paratypes in the British Museum; 31 paratypes in the collection of the Department of Agriculture, Perth; 13 paratypes in the West Australian Museum; 14 paratypes in the South Australian Museum; 11 paratypes in the collection of the Division of Entomology, C. S. I. R. O.; 3 paratypes in the Frey Museum; 1 paratype in the collection of Dr. F. H. Uther Baker, Fremantle.

Liparetrus malara sp. nov.

L e n g t h : 9-11 mm. **C o l o u r :** head, pronotum, scutellum and abdomen black; ventral surface of the thorax black; femora and tibiae dark reddish-brown or black, tarsi reddish-brown; elytra dark reddish-brown or black; palpi reddish-brown, antennae reddish-brown with apices of lamellae black; clypeus bearing some long, very fine, yellowish setae; frons without setae; ocular canthi each with a group of yellow setae. Pronotum with a yellow, transparent membranous anterior margin behind which is a continuous or almost continuous fringe of long, erect, yellowish-brown setae; disc of pronotum without setae, posterior margin defined by a groove only in the middle, the posterior edge with or without a fringe of long fine setae. Elytra without setae on the disc; striae punctured and slightly impressed, grouped in pairs. Propygidium finely and regularly punctured, with or without sparse, long, fine hairs. Pygidium with or without a few long, fine hairs. Clypeus and frons densely punctured; anterior edge of the clypeus straight, the sides sinuate (fig. 38). Tergite and ventrite of the penultimate abdominal segment fused. Posterior coxae with lateral and posterior margins

broad, pale yellowish, transparent and continuous. Anterior tibia with two teeth on the outer edge in addition to the apical point.

The species is related to *L. rugatus* Blanchard by the structure of the posterior coxae, penultimate abdominal segment, anterior tibiae and the distribution of setae on head and pronotum, and the absence of setae from



38 *Liparetrus malara* sp. nov., head and pronotum.

39 *Liparetrus malara* sp. nov., aedeagus, lateral.

40 *Liparetrus malara* sp. nov., parameres.

the elytra. *L. rugatus* is distinguished by its smaller size (7 mm.) and by the shape of the clypeus and pronotum. Aedeagus as figs. 39, 40.

The specific name is derived from an aboriginal word "malara" = "night".

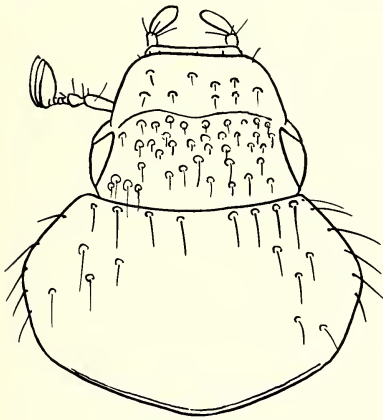
Localities: Western Australia: Milly's Oak, (holotype ♂); Kalgoorlie, (1 paratype); Pithora, (1 paratype); Northam, VII. 1953, (H. Demarz), (1 paratype).

Location of Types: holotype and paratype in the West Australian Museum; 1 paratype in the Australian Museum, Sydney; 1 paratype in the Frey Museum, 1 paratype in the F. E. Wilson collection.

Liparetrus demarzi sp. nov.

Length: c 4.2 mm. **Colour:** labrum and clypeus reddish-brown; frons and ventral surface of the head very dark brown; pronotum yellowish-brown with the extreme anterior and posterior edges darkened; scutellum yellowish with darkened edges; elytra, abdomen, ventral surface (except head), legs, antennae and mouthparts, pale yellowish-brown. Anterior faces of labrum and clypeus equal in depth. Upper surface of clypeus and of frons densely punctured with a mixture of very large setiferous punctures and small non-setiferous punctures, the setae long, yellow, semierect. Pronotum sparsely punctured with small non-setiferous punctures and a small number of larger setiferous punctures, the latter being mainly towards the

sides and on the anterior margin (fig. 41), the setae being long, yellow, erect or semierect. Pronotum with a very narrow membranous anterior margin, defined by a groove, and with very fine, raised, posterior margin, defined by a groove. Elytra without setae on the surface; ratio of maximum length/maximum width of one elytron c 1.7. Elytral intervals 1, 3, 5 and 7 about half as wide as adjacent intervals. Striae regularly punctured, the wider intervals sparsely punctured. Elytra without membranous apical margins. Propygidium and pygidium faintly and sparsely punctured



41

41 *Liparetrus demarzi* sp. nov.,
head and pronotum.

and with a few widely spaced larger punctures each bearing a long seta; surface dull, with isodiametric reticulate microsculpture. Posterior coxae with a membranous posterior margin which is continued on to the lateral margin in a smooth curve. Antennae 9-segmented. Anterior tibiae without a tooth on the outer edge.

The form of the margins of the posterior coxae, anterior tibiae without teeth and elytra without setae relates *L. demarzi* with *L. simulator* Lea and *L. occidentalis* Macleay. From these species *L. demarzi* is distinguished by its smaller size, yellow pronotum and the relatively few setiferous punctures on the pronotum and pygidium.

Locality: Northern Territory: Beswick (c 14° S, 133° E), (H. Demarz), holotype.

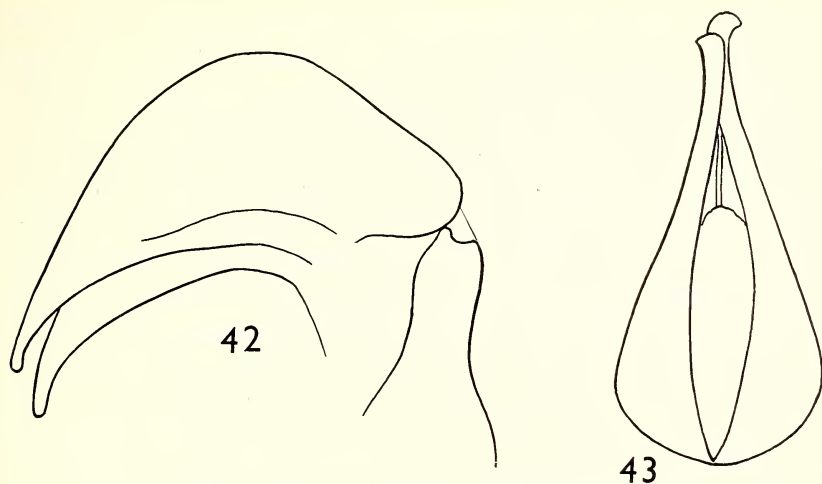
Location of Type: the holotype is in the Frey Museum.

***Colpochila freyi* sp. nov.**

L e n g t h : 17–18 mm. **C o l o u r :** dark reddish-brown with long, fine, yellow setae clothing the ventral surface of the thorax and the coxae. Clypeus with anterior face about as deep as the labrum, with about 30 large punctures each bearing a stout brown seta; surface with fine punctures between the large punctures. Anteroventral surface of the labrum deeply concave, unpunctured and without setae. Terminal segment of the maxillary palpi with the longitudinally strigose area on the upper surface not depressed nor bounded by a distinct rim. Outline of the clypeus as seen from above approximately semicircular, the margin strongly reflexed, upper surface of the clypeus densely and uniformly punctured (density of punctures c 195/sq. mm.), without setae. Frons smoothly convex, without ridges, punctured like the clypeus, without setae. Eyes convex, canthus on each side with a group of brown setae. Antennae 9-segmented including a club composed of 3 lamellae; maximum length of club in ♂ c 1.2 mm., in ♀ 1.0 mm. Pronotum strongly transverse, ratio greatest width/middle length c 1.8; posterior angles very broadly rounded; anterior margin of pronotum membranous, transparent, yellowish in front, dark, raised, chitinous, behind, the membranous and chitinous portions being of equal width; pronotum also with a fine, raised, posterior margin; anterior and posterior margins without setae, each lateral margin bearing 5 or 6 long, brown setae; surface of pronotum sparsely punctured compared with the head (density c 100/sq. mm.) with a very slight trace of a median longitudinal depression. Elytra unusually inflated, widest about one third of their length from the apex; ratio maximum length/maximum width of one elytron 2.65 : 1; ratio of greatest width/width at shoulder c 1.3 : 1. Sutural stria strongly impressed especially in the apical half; other striae grouped in pairs, very slightly impressed, marked by punctures; ratio of widths of 2nd and 3rd intervals in the middle c 3 : 1. Intervals 1, 2, 4, 6, 8, 10 fairly uniformly punctured (density c 26/sq. mm.); lateral margins with a sparse fringe of long, brown setae and with a dense, apical fringe of very short, very fine, yellow setae. Pygidium sparsely punctured (density c 60/sq. mm.), without setae, except for a few at the edges; surface between the punctures with reticulate microsculpture; margins raised except at the apex. Propygidium setose, but without a row of specially stout or long setae close and parallel to the posterior edge. Aedeagus as figs. 42, 43.

L o c a l i t y : Western Australia: Shaw River, 20. V. 1955, (H. Demarz), holotype and 3 paratypes.

L o c a t i o n o f T y p e s : holotype and 2 paratypes in the Frey Museum, 1 paratype in the British Museum.

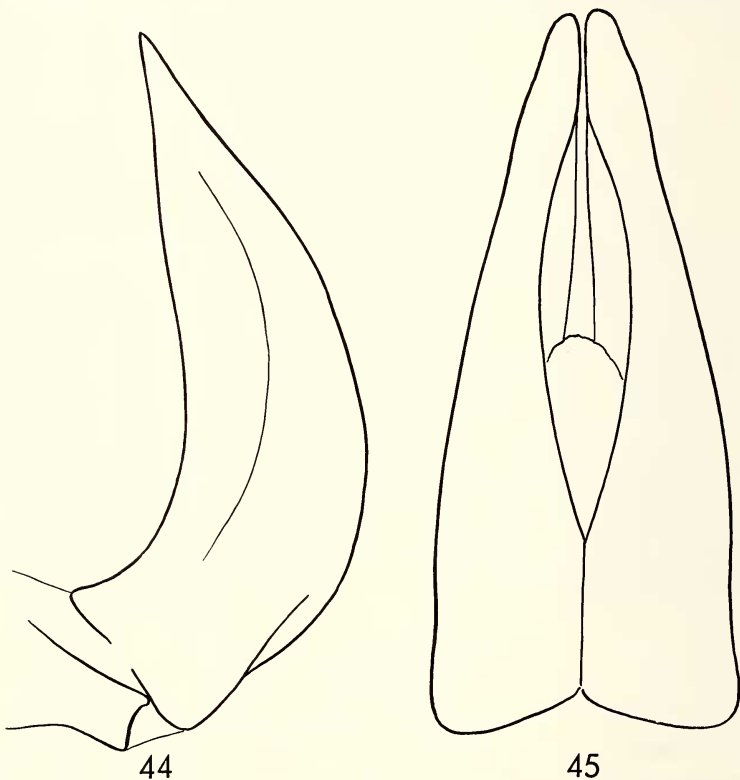
42 *Colpochila freyi* sp. nov., aedeagus, lateral.43 *Colpochila freyi* sp. nov., parameres.

Colpochila freyi is closely related to *C. obesa* Boisduval, a species common in E. Australia, to *C. nigra* Lea (Western Australia), to *C. dilatata* Lea (N. Queensland) and to *C. pygmaea* Blackburn (S. Australia). *C. freyi* is distinguished from *C. obesa* by the fact that the sparse punctures on the pygidium are not interspersed with numerous smaller punctures and by the form of the aedeagus. *C. nigra* is distinguished by its all black body and coarse, dense, puncturation. *C. pygmaea* is distinguished by its smaller size (12–15 mm.) and the longer apical fringe on the elytra. *C. dilatata* can be recognised by the dense fine puncturation of the pygidium, by having a central protuberance on the pygidium, by its broader clypeus and smaller size (length c 13 mm.).

***Colpochila laciniata* sp. nov.**

Length: 19–21 mm. **Colour:** head dark brown, remainder of body dark reddish-brown, antennae and palpi reddish-brown; legs dark reddish-brown; setose apical fringe of the elytra and the long pubescence of the ventral surface of the thorax golden yellow. Anterior face of the labrum about as deep as the clypeus, without setae; anterior face of the clypeus with numerous long brown setae; clypeus ratio of width at base/middle length c 2.0 : 1; anterior margin slightly reflexed, upper surface of clypeus uniformly punctured (density c 60/sq. mm.), without setae; frons with a group of brown setae on each side above the middle of the eye but without setae elsewhere. Frons punctured like the clypeus. Antennae 9-segmented

including a 3-lamellate club, the club being slightly longer in the male (c 1.4 mm.) than in the female (c 1.2 mm.). Terminal segment of the maxillary palp with the basal half of the upper surface longitudinally strigose, the strigose area not flattened or surrounded by a rim. Pronotum ratio of greatest width/middle length c 1.80 : 1, posterior angles obtuse and broadly rounded; anterior margin raised and with a yellow membranous border in front; anterior border with a sparse fringe of long brown setae; posterior margin with a continuous, fine, raised edge and a few brown setae on each side; each lateral edge with a sparse fringe of long, brown setae; surface of the pronotum without setae; puncturation of the surface fairly uniform,



44 *Colpochila laciniata* sp. nov., parameres, lateral.
 45 *Colpochila laciniata* sp. nov., parameres.

density c 45/sq. mm. Scutellum with a few setae on each side near the base. Elytra with intervals 1, 3, 5, 7 and 9 narrower than adjacent intervals and slightly convex; sutural stria more strongly impressed towards the apex; the 2nd interval about 1.4 times as wide as the sutural interval about the middle of their length; intervals 2, 4, 6, 8, 10 regularly but rather sparsely

punctured (density c 30/sq. mm.). Intervals 1, 3, 5, 7 and 9 more sparsely punctured; apical margins and the apical half of the lateral margins with a very dense fringe composed of stiff yellow setae, the length of the setae composing the fringe being uniform and equal to about twice the width of the raised margin of the elytra; the raised lateral margins of the elytra also bear sparse, long, brown setae which project at an angle above the fringe; the sutural intervals at their apices end in a small projection beyond the edges of the elytra. Propygidium setose, with a fringe of fairly long setae close to, and parallel with, the posterior edge, the setae being of irregular length and projecting over the edge of the propygidium; posterior margin of the propygidium between the fringe and the posterior edge, shining, without setae; a trace of the fringe is also carried on to the penultimate ventrite at each side. Pygidium triangular, transverse, ratio of maximum width/middle length c 1.4 : 1, surface fairly uniformly punctured, the punctures in the basal third bearing very short, semierect, brown setae; margins raised except at the apex. Ventrites each with an irregular row of long, brown setae continuous across the middle. Posterior coxae with outer angles obvious, projecting backwards. Anterior tibiae with two obvious teeth on the outer edge in addition to the apical process. Aedeagus as in figs. 44, 45.

Colpochila firma Blackburn, also from Western Australia is the species most closely related to *C. laciniata*. The two species are distinguished as follows: —

Frons coarsely punctured, with a band of setiferous punctures extending across the full width of the frons between the eyes; pronotum without setae on the anterior margin;

***firma* Blackburn.**

Frons more finely punctured, with setiferous punctures restricted to a small group above each eye; pronotum with a sparse fringe of long, brown setae on the anterior margin;

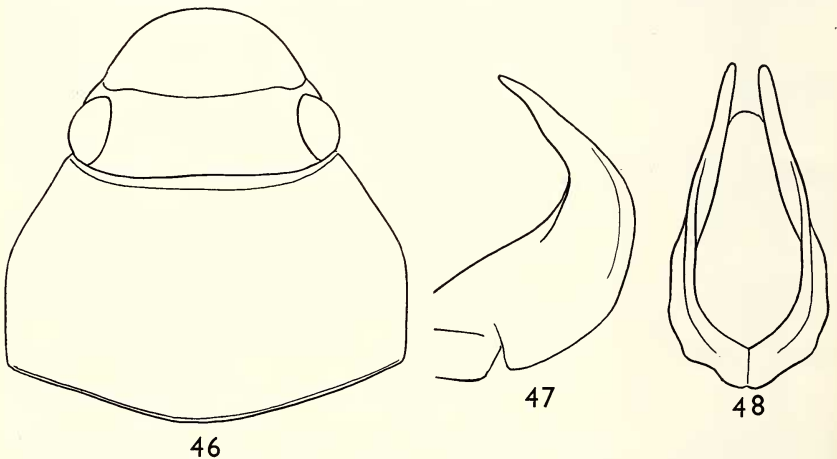
***laciniata* sp. nov.**

Localities: Western Australia: Abydos H. S., 56 miles W. S. W. of Marble Bar, 6. VI. 1953 (J. H. Calaby), holotype ♂, 7 paratypes ♂, 2 paratypes ♀; Shaw River (c. 21° S., 119° E.), VI. 1955, (H. Demarz), 1 paratype ♂, 3 paratypes ♀.

Location of Types: holotype and paratypes in the collection of the Division of Entomology, C. S. I. R. O., Canberra; paratypes in the Frey Museum and in the British Museum.

Frenchella russula sp. nov.

L e n g t h : 12–13 mm. **C o l o u r :** body bright reddish-brown. The palpi and antennae yellowish-brown. Outline of the clypeus as viewed from above smoothly rounded (fig. 46), without trace of lateral angles; anterior and lateral margins of the clypeus reflexed. Surface of the clypeus and frons strongly punctured, the punctures circular and separated by several times their own width. Pronotum ratio of greatest width/middle length 1.6 : 1, the sides parallel-sided behind the middle (fig. 46); posterior angles obvious, obtuse; anterior margin defined by a continuous groove; posterior margin narrow, raised, dark in colour and defined by a continuous groove; punctures of the surface of the pronotum rather sparse, as on the frons, a narrow band just anterior to the posterior margin is almost impunctate. Scutellum rather dull compared with the shining surfaces of head, pronotum and elytra and with a few faint punctures. Elytral striae evenly spaced, marked by regularly spaced punctures; intervals between striae distinctly convex and sparsely punctured. Clypeus with a transverse row of setiferous punctures on the vertical anterior face. Dorsal surface of the frons and clypeus without setae; each ocular canthus bearing a group of



46 *Frenchella russula* sp. nov., head and pronotum.

47 *Frenchella russula* sp. nov., parameres, lateral.

48 *Frenchella russula* sp. nov., parameres.

yellow setae. Surface of the pronotum without setae; lateral margins with sparse long yellow setae. Lateral margins of the elytra with a dense fringe of yellowish-brown setae; apical edges of the elytra not bordered and without setae. Pygidium shining, with minute punctures and an apical fringe of long yellow setae. Visible ventrites 1 to 4 sparsely punctured,

each with a transverse row of setiferous punctures. Posterior coxae with an obtuse postero-lateral angle. Anterior edge of the pronotal hypomer on each side produced into a free, curved, knife-like edge. Mentum with a very shallow v-shaped anterior emargination, ventral surface smooth, without a transverse ridge or step, the anterior half with a few erect setae. Apical segment of the maxillary palp almost cylindrical, slightly tapered at the apex. Antennae 9-segmented, including a 3-lamellate club. Lamellae of club in ♂ 1.6 mm. long, in ♀ 1.0 mm. long. Abdomen without a lateral ridge. Anterior tibia with two teeth on the outer edge in addition to the apical process, the basal tooth very acute and directed towards the apex of the tibia. Claws simple. Posterior tibia strongly expanded at the apex, with two apical spurs and with a transverse spinose ridge about the middle. Aedeagus as figs. 47, 48.

The species is closely related to *Frenchella lubrica* Blackburn and to *F. gagatina* Lea, all three species being without setae on the dorsal surface of the head, pronotum and elytra. It differs from *F. lubrica* and *F. gagatina* by the more tapered shape of the clypeus and by the shape of the pronotum, the sides of which are straight, not concave or convex, with the posterior angles obtuse. The ratio of width/length of the pronotum is 1.6 : 1 in *F. russula* compared with 1.45 : 1 in *F. lubrica* and 1.75 : 1 in *F. gagatina*.

Localities: New South Wales: Blue Mountains (holotype ♂) S. Queensland: Brisbane, (A. J. Turner), 1 paratype ♀; Southport (28° S., 153½° E.), I. 1957 (G. Frey), 22 paratypes ♂.

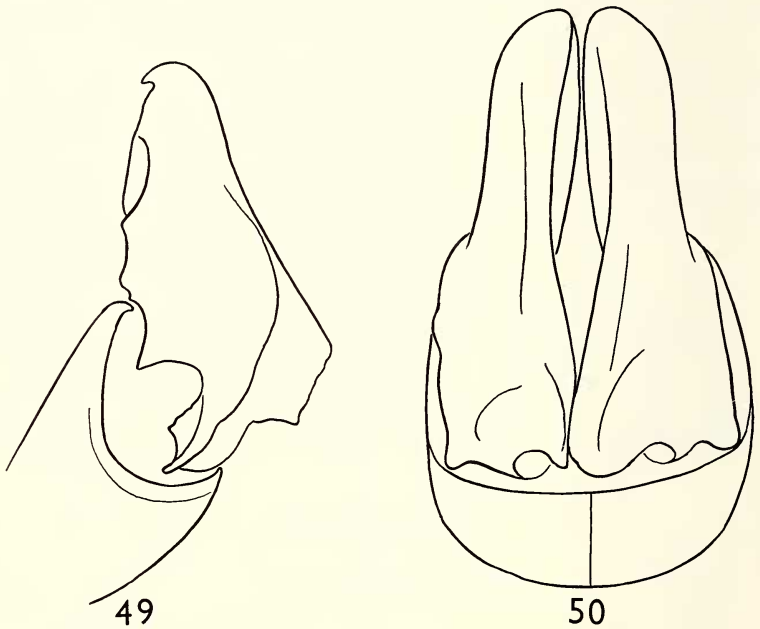
Location of Types: holotype and paratype in the South Australian Museum; paratypes in the Frey Museum and in the British Museum.

MELOLONTHINI

Lepidiota oryx sp. nov.

Length: 18–22 mm. **Colour:** body and legs dark brown; antennae reddish-brown; scales and setae white. Anterior edge of the clypeus with a shallow, obtuse emargination, upper surface shallowly concave, punctured on each side of the middle. Frons densely and somewhat irregularly punctured, each puncture containing an ovoid scale. Pronotum with a narrow, raised, anterior margin defined by a groove, the margin with a single row of small punctures which are widely spaced about the middle and more closely spaced towards the sides. Pronotal disc with punctures rather sparsely and irregularly scattered, each puncture containing an almost circular white scale, the puncture becoming densely crowded and the

scales larger towards the lateral and posterior edges; punctures usually almost absent from the median line on the posterior half of the pronotal surface. Lateral edges of the pronotum slightly concave before the posterior angles which are sharp and square. Scutellum irregularly punctured, the punctures bearing large scales. Elytra rather sparsely punctured, each puncture with a white scale of size smaller than those near lateral edges of the pronotum. The narrow intervals 1, 3, 5 and 7 very sparsely punctured so that they are faintly visible to the naked eye. Apical edges of the elytra with very narrow pale membranous margins. Propygidium and pygidium rather densely punctured, the punctures bearing subtriangular white scales. Abdominal ventrites densely clothed with small white scales. Remainder of the ventral surface clothed with larger, longer white scales, the meta-



49 *Lepidiota oryx* sp. nov., aedeagus, lateral.

50 *Lepidiota oryx* sp. nov., parameres.

sternum and the middle of the pro- and meso-sternum bearing long yellowish-white setae in addition. Aedeagus figs. 49, 50. The sexes are distinguished only by the length of the antennal club. In the male the maximum length of the lamellae of the club is greater, and in the female less, than the length of antennal segments 2 to 7 together.

Lepidiota oryx is closely related to *L. perkinsi* Blackburn. In *L. oryx* the outline of the clypeus is more rounded at the sides and the posterior

and lateral edges of the pronotum are concave close to the angle so that when viewed from directly above the middle of the posterior edge the posterior angles appear to be acute. In *L. perkinsi* the posterior and lateral edges of the pronotum close to the angle are straight and the angle obviously obtuse. There are also obvious differences between the genitalia in the two species.

Localities: Northern Territory: neighbourhood of Darwin, III. 1958 (H. Demarz), holotype and 5 paratypes; Humpty Doo, XII. 1957, (H. Demarz), 3 paratypes.

Location of Types: holotype and paratypes in the Frey Museum, paratypes in the British Museum.